

Section 1. Registration Information

Source Identification

Facility Name:	Shell Bakersfield Refinery - Areas 1 & 2
Parent Company #1 Name:	Shell Oil Products U.S.
Parent Company #2 Name:	

Submission and Acceptance

Submission Type:	Re-submission
Subsequent RMP Submission Reason:	
Description:	
Receipt Date:	06-Aug-2002
Postmark Date:	01-Jul-2002
Next Due Date:	01-Jul-2007
Completeness Check Date:	07-Aug-2002
Complete RMP:	Yes
De-Registration / Closed Reason:	03
De-Registration / Closed Reason Other Text:	
De-Registered / Closed Date:	19-May-2005
De-Registered / Closed Effective Date:	24-May-2005
Certification Received:	Yes

Facility Identification

EPA Facility Identifier:	1000 0014 7815
Other EPA Systems Facility ID:	93308TXCRF6451
Facility Registry System ID:	1100 1788 7330

Dun and Bradstreet Numbers (DUNS)

Facility DUNS:	151324999
Parent Company #1 DUNS:	4294737
Parent Company #2 DUNS:	4294737

Facility Location Address

Street 1:	6451 Rosedale Highway
Street 2:	
City:	Bakersfield
State:	CALIFORNIA
ZIP:	93308
ZIP4:	
County:	KERN

Facility Latitude and Longitude

Latitude (decimal):	35.381111
Longitude (decimal):	-119.073889
Lat/Long Method:	Interpolation - Map
Lat/Long Description:	Process Unit Area Centroid
Horizontal Accuracy Measure:	
Horizontal Reference Datum Name:	
Source Map Scale Number:	

Owner or Operator

Operator Name:	Shell Oil Products US
Operator Phone:	(661) 326-4200

Mailing Address

Operator Street 1:	P.O. Box 1476
Operator Street 2:	
Operator City:	Bakersfield
Operator State:	CALIFORNIA
Operator ZIP:	93302
Operator ZIP4:	
Operator Foreign State or Province:	
Operator Foreign ZIP:	
Operator Foreign Country:	

Name and title of person or position responsible for Part 68 (RMP) Implementation

RMP Name of Person:	
RMP Title of Person or Position:	Refinery Manager
RMP E-mail Address:	

Emergency Contact

Emergency Contact Name:	Fred Hrenchir
Emergency Contact Title:	Supervisor, Health & Safety
Emergency Contact Phone:	(661) 326-4388
Emergency Contact 24-Hour Phone:	(661) 326-4200
Emergency Contact Ext. or PIN:	
Emergency Contact E-mail Address:	fvhrenchir@shellopus.com

Other Points of Contact

Facility or Parent Company E-mail Address:	
Facility Public Contact Phone:	
Facility or Parent Company WWW Homepage Address:	

Local Emergency Planning Committee

LEPC:	Region 5 LEPC Inland South
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Full Time Equivalent Employees

Number of Full Time Employees (FTE) on Site:	227
FTE Claimed as CBI:	

Covered By

OSHA PSM :	Yes
EPCRA 302 :	Yes
CAA Title V:	

Air Operating Permit ID:

OSHA Ranking

OSHA Star or Merit Ranking:

Last Safety Inspection

Last Safety Inspection (By an External Agency) Date:	11-Apr-2002
Last Safety Inspection Performed By an External Agency:	State occupational safety agency

Predictive Filing

Did this RMP involve predictive filing?:

Preparer Information

Preparer Name:
Preparer Phone:
Preparer Street 1:
Preparer Street 2:
Preparer City:
Preparer State:
Preparer ZIP:
Preparer ZIP4:
Preparer Foreign State:
Preparer Foreign Country:
Preparer Foreign ZIP:

Confidential Business Information (CBI)

CBI Claimed:
Substantiation Provided:
Unsanitized RMP Provided:

Reportable Accidents

Reportable Accidents:	See Section 6. Accident History below to determine if there were any accidents reported for this RMP.
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Process Chemicals

Process ID:	37804
Description:	Unit 20 - HGU
Process Chemical ID:	49506
Program Level:	Program Level 3 process
Chemical Name:	Flammable Mixture
CAS Number:	00-11-11
Quantity (lbs):	19000
CBI Claimed:	
Flammable/Toxic:	Flammable

Flammable Mixture Chemical Components

Flammable Mixture Chemical ID:	35725
Chemical Name:	Methane
CAS Number:	74-82-8
Flammable/Toxic:	Flammable

Process ID:	37805
Description:	Unit 21 - HCU
Process Chemical ID:	49507
Program Level:	Program Level 3 process
Chemical Name:	Flammable Mixture
CAS Number:	00-11-11
Quantity (lbs):	73000
CBI Claimed:	
Flammable/Toxic:	Flammable

Flammable Mixture Chemical Components

Flammable Mixture Chemical ID:	35729
Chemical Name:	Propane
CAS Number:	74-98-6
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35728
Chemical Name:	Butane
CAS Number:	106-97-8
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35730
Chemical Name:	Ethane
CAS Number:	74-84-0
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35731
Chemical Name:	Methane
CAS Number:	74-82-8
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35726
Chemical Name:	Hydrogen
CAS Number:	1333-74-0
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35727
Chemical Name:	Pentane
CAS Number:	109-66-0
Flammable/Toxic:	Flammable

Process ID:	37807
Description:	Unit 24 - SGP
Process Chemical ID:	49509
Program Level:	Program Level 3 process

Chemical Name:	Flammable Mixture
CAS Number:	00-11-11
Quantity (lbs):	56000
CBI Claimed:	
Flammable/Toxic:	Flammable

Flammable Mixture Chemical Components

Flammable Mixture Chemical ID:	35740
Chemical Name:	Propane
CAS Number:	74-98-6
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35737
Chemical Name:	Pentane
CAS Number:	109-66-0
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35738
Chemical Name:	Isobutane [Propane, 2-methyl]
CAS Number:	75-28-5
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35739
Chemical Name:	Butane
CAS Number:	106-97-8
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35736
Chemical Name:	Isopentane [Butane, 2-methyl-]
CAS Number:	78-78-4
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35741
Chemical Name:	Ethane
CAS Number:	74-84-0
Flammable/Toxic:	Flammable

Process ID:	37806
Description:	Unit 22 - CRU#4
Process Chemical ID:	49508
Program Level:	Program Level 3 process
Chemical Name:	Flammable Mixture
CAS Number:	00-11-11
Quantity (lbs):	20000
CBI Claimed:	
Flammable/Toxic:	Flammable

Flammable Mixture Chemical Components

Flammable Mixture Chemical ID:	35732
Chemical Name:	Isobutane [Propane, 2-methyl]
CAS Number:	75-28-5
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID: 35733
Chemical Name: Butane
CAS Number: 106-97-8
Flammable/Toxic: Flammable

Flammable Mixture Chemical ID: 35734
Chemical Name: Propane
CAS Number: 74-98-6
Flammable/Toxic: Flammable

Flammable Mixture Chemical ID: 35735
Chemical Name: Ethane
CAS Number: 74-84-0
Flammable/Toxic: Flammable

Process ID: 37809
Description: Unit 26 - HTU#3
Process Chemical ID: 49511
Program Level: Program Level 3 process
Chemical Name: Flammable Mixture
CAS Number: 00-11-11
Quantity (lbs): 52000
CBI Claimed:
Flammable/Toxic: Flammable

Flammable Mixture Chemical Components

Flammable Mixture Chemical ID: 35754
Chemical Name: Propane
CAS Number: 74-98-6
Flammable/Toxic: Flammable

Flammable Mixture Chemical ID: 35753
Chemical Name: Butane
CAS Number: 106-97-8
Flammable/Toxic: Flammable

Flammable Mixture Chemical ID: 35749
Chemical Name: Hydrogen
CAS Number: 1333-74-0
Flammable/Toxic: Flammable

Flammable Mixture Chemical ID: 35750
Chemical Name: Isopentane [Butane, 2-methyl-]
CAS Number: 78-78-4
Flammable/Toxic: Flammable

Flammable Mixture Chemical ID: 35756
Chemical Name: Methane
CAS Number: 74-82-8
Flammable/Toxic: Flammable

Flammable Mixture Chemical ID: 35755

Chemical Name:	Ethane
CAS Number:	74-84-0
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	35752
Chemical Name:	Isobutane [Propane, 2-methyl]
CAS Number:	75-28-5
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	35751
Chemical Name:	Pentane
CAS Number:	109-66-0
Flammable/Toxic:	Flammable
Process ID:	37811
Description:	Unit 70 -Area 1 Tank Farm
Process Chemical ID:	49513
Program Level:	Program Level 3 process
Chemical Name:	Flammable Mixture
CAS Number:	00-11-11
Quantity (lbs):	5700000
CBI Claimed:	
Flammable/Toxic:	Flammable

Flammable Mixture Chemical Components

Flammable Mixture Chemical ID:	35764
Chemical Name:	Butane
CAS Number:	106-97-8
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	35763
Chemical Name:	Pentane
CAS Number:	109-66-0
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	35765
Chemical Name:	Ethane
CAS Number:	74-84-0
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	35762
Chemical Name:	Isopentane [Butane, 2-methyl-]
CAS Number:	78-78-4
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	35766
Chemical Name:	Methane
CAS Number:	74-82-8
Flammable/Toxic:	Flammable

Process ID:	37812
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Description:	Unit 71 -Area 2 Tank Farm
Process Chemical ID:	49514
Program Level:	Program Level 3 process
Chemical Name:	Flammable Mixture
CAS Number:	00-11-11
Quantity (lbs):	44000000
CBI Claimed:	
Flammable/Toxic:	Flammable

Flammable Mixture Chemical Components

Flammable Mixture Chemical ID:	35774
Chemical Name:	Methane
CAS Number:	74-82-8
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35773
Chemical Name:	Ethane
CAS Number:	74-84-0
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35767
Chemical Name:	Propylene [1-Propene]
CAS Number:	115-07-1
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35771
Chemical Name:	Butane
CAS Number:	106-97-8
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35768
Chemical Name:	Isopentane [Butane, 2-methyl-]
CAS Number:	78-78-4
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35769
Chemical Name:	Pentane
CAS Number:	109-66-0
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35770
Chemical Name:	Isobutane [Propane, 2-methyl]
CAS Number:	75-28-5
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35772
Chemical Name:	Propane
CAS Number:	74-98-6
Flammable/Toxic:	Flammable

Process ID:	37812
Description:	Unit 71 -Area 2 Tank Farm
Process Chemical ID:	49515

Program Level:	Program Level 3 process
Chemical Name:	Ammonia (anhydrous)
CAS Number:	7664-41-7
Quantity (lbs):	290000
CBI Claimed:	
Flammable/Toxic:	Toxic

Process ID:	37803
Description:	Units 10/11/12 - CVU
Process Chemical ID:	49505
Program Level:	Program Level 3 process
Chemical Name:	Flammable Mixture
CAS Number:	00-11-11
Quantity (lbs):	88000
CBI Claimed:	
Flammable/Toxic:	Flammable

Flammable Mixture Chemical Components

Flammable Mixture Chemical ID:	35720
Chemical Name:	Isopentane [Butane, 2-methyl-]
CAS Number:	78-78-4
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35721
Chemical Name:	Butane
CAS Number:	106-97-8
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35722
Chemical Name:	Isobutane [Propane, 2-methyl]
CAS Number:	75-28-5
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35723
Chemical Name:	Propane
CAS Number:	74-98-6
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35719
Chemical Name:	Pentane
CAS Number:	109-66-0
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35724
Chemical Name:	Ethane
CAS Number:	74-84-0
Flammable/Toxic:	Flammable

Process ID:	37808
Description:	Unit 25 - MEA
Process Chemical ID:	49510

Program Level:	Program Level 3 process
Chemical Name:	Flammable Mixture
CAS Number:	00-11-11
Quantity (lbs):	48000
CBI Claimed:	
Flammable/Toxic:	Flammable

Flammable Mixture Chemical Components

Flammable Mixture Chemical ID:	35743
Chemical Name:	Pentane
CAS Number:	109-66-0
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35742
Chemical Name:	Isopentane [Butane, 2-methyl-]
CAS Number:	78-78-4
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35746
Chemical Name:	Propane
CAS Number:	74-98-6
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35748
Chemical Name:	Methane
CAS Number:	74-82-8
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35747
Chemical Name:	Ethane
CAS Number:	74-84-0
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35745
Chemical Name:	Butane
CAS Number:	106-97-8
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	35744
Chemical Name:	Isobutane [Propane, 2-methyl]
CAS Number:	75-28-5
Flammable/Toxic:	Flammable

Process ID:	37810
Description:	Unit 27 - CD Hydro
Process Chemical ID:	49512
Program Level:	Program Level 3 process
Chemical Name:	Flammable Mixture
CAS Number:	00-11-11
Quantity (lbs):	44000
CBI Claimed:	
Flammable/Toxic:	Flammable

Flammable Mixture Chemical Components

Flammable Mixture Chemical ID:	35759
Chemical Name:	Butane
CAS Number:	106-97-8
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	35757
Chemical Name:	Pentane
CAS Number:	109-66-0
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	35758
Chemical Name:	Isobutane [Propane, 2-methyl]
CAS Number:	75-28-5
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	35761
Chemical Name:	Isopentane [Butane, 2-methyl-]
CAS Number:	78-78-4
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	35760
Chemical Name:	Propane
CAS Number:	74-98-6
Flammable/Toxic:	Flammable

Process NAICS

Process ID:	37803
Process NAICS ID:	38717
Program Level:	Program Level 3 process
NAICS Code:	32411
NAICS Description:	Petroleum Refineries
Process ID:	37804
Process NAICS ID:	38718
Program Level:	Program Level 3 process
NAICS Code:	32411
NAICS Description:	Petroleum Refineries
Process ID:	37805
Process NAICS ID:	38719
Program Level:	Program Level 3 process
NAICS Code:	32411
NAICS Description:	Petroleum Refineries
Process ID:	37806
Process NAICS ID:	38720
Program Level:	Program Level 3 process
NAICS Code:	32411
NAICS Description:	Petroleum Refineries

Process ID: 37807
Process NAICS ID: 38721
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Process ID: 37808
Process NAICS ID: 38722
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Process ID: 37809
Process NAICS ID: 38723
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Process ID: 37810
Process NAICS ID: 38724
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Process ID: 37811
Process NAICS ID: 38725
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Process ID: 37812
Process NAICS ID: 38726
Program Level: Program Level 3 process
NAICS Code: 32411
NAICS Description: Petroleum Refineries

Section 2. Toxics: Worst Case

Toxic Worst ID: 24662

Percent Weight:	
Physical State:	Gas liquified by pressure
Model Used:	EPA's OCA Guidance Reference Tables or Equations
Release Duration (mins):	10
Wind Speed (m/sec):	1.5
Atmospheric Stability Class:	F
Topography:	Urban

Passive Mitigation Considered

- Dikes:
- Enclosures:
- Berms:
- Drains:
- Sumps:
- Other Type:

Section 3. Toxics: Alternative Release

Toxic Alter ID: 29038

Percent Weight:	
Physical State:	Gas liquified by pressure
Model Used:	PHASTProfessional by DNV Technica
Wind Speed (m/sec):	2.7
Atmospheric Stability Class:	D
Topography:	Rural

Passive Mitigation Considered

Dikes:	Yes
Enclosures:	
Berms:	
Drains:	
Sumps:	
Other Type:	

Active Mitigation Considered

Sprinkler System:	
Deluge System:	
Water Curtain:	
Neutralization:	
Excess Flow Valve:	
Flares:	
Scrubbers:	
Emergency Shutdown:	
Other Type:	

Toxic Alter ID: 29039

Percent Weight:	
Physical State:	Gas liquified by pressure
Model Used:	PHASTProfessional by DNV Technica
Wind Speed (m/sec):	2.7
Atmospheric Stability Class:	D
Topography:	Urban

Passive Mitigation Considered

Dikes:	Yes
Enclosures:	
Berms:	
Drains:	
Sumps:	
Other Type:	

Active Mitigation Considered

Sprinkler System:	
Deluge System:	
Water Curtain:	
Neutralization:	
Excess Flow Valve:	
Flares:	
Scrubbers:	

Emergency Shutdown:

Other Type:

Section 4. Flammables: Worst Case

Flammable Worst ID: 6613

Model Used:	EPA's OCA Guidance Reference Tables or Equations
Endpoint used:	1 PSI

Passive Mitigation Considered

Blast Walls:
Other Type:

Section 5. Flammables: Alternative Release

Flammable Alter ID: 5223

Model Used:

PHASTProfessional by DNV Technica

Passive Mitigation Considered

Dikes:

Fire Walls:

Blast Walls:

Enclosures:

Other Type:

Active Mitigation Considered

Sprinkler System:

Deluge System:

Water Curtain:

Excess Flow Valve:

Other Type:

Section 6. Accident History

Accident History ID: 4094

Date of Accident:	22-Aug-2001
Time Accident Began (HHMM):	0415
NAICS Code of Process Involved:	32411
NAICS Description:	Petroleum Refineries
Release Duration:	000 Hours 10 Minutes

Release Event

Gas Release:	Yes
Liquid Spill/Evaporation:	
Fire:	
Explosion:	
Uncontrolled/Runaway Reaction:	

Release Source

Storage Vessel:	
Piping:	Yes
Process Vessel:	
Transfer Hose:	
Valve:	
Pump:	
Joint:	
Other Release Source:	

Weather Conditions at the Time of Event

Wind Speed:	
Units:	meters/second
Direction:	
Temperature:	
Atmospheric Stability Class:	
Precipitation Present:	
Unknown Weather Conditions:	Yes

On-Site Impacts

Employee or Contractor Deaths:	0
Public Responder Deaths:	0
Public Deaths:	0
Employee or Contractor Injuries:	1
Public Responder Injuries:	0
Public Injuries:	0
On-Site Property Damage (\$):	0

Known Off-Site Impacts

Deaths:	0
Hospitalization:	0
Other Medical Treatments:	0
Evacuated:	0

Sheltered-in-Place: 0

Off-Site Property Damage (\$): 0

Environmental Damage

Fish or Animal Kills:

Tree, Lawn, Shrub, or Crop Damage:

Water Contamination:

Soil Contamination:

Other Environmental Damage:

Initiating Event

Initiating Event:

Equipment Failure

Contributing Factors

Equipment Failure: Yes

Human Error:

Improper Procedures:

Overpressurization: Yes

Upset Condition:

By-Pass Condition:

Maintenance Activity/Inactivity:

Process Design Failure: Yes

Unsuitable Equipment:

Unusual Weather Condition:

Management Error:

Other Contributing Factor:

Off-Site Responders Notified

Off-Site Responders Notified:

Notified and Responded

Changes Introduced as a Result of the Accident

Improved or Upgraded Equipment:

Revised Maintenance:

Revised Training:

Revised Operating Procedures:

New Process Controls:

New Mitigation Systems:

Revised Emergency Response Plan:

Changed Process: Yes

Reduced Inventory: Yes

None:

Other Changes Introduced: Substituted more inherently safe proces

Confidential Business Information

CBI Claimed:

Chemicals in Accident History

Accident Chemical ID:	4451
Quantity Released (lbs):	10
Percent Weight:	
Chemical Name:	Chlorine
CAS Number:	7782-50-5
Flammable/Toxic:	Toxic

Section 7. Program Level 3

Description

Physically separates crude oil into intermediate and final products by boiling the crude oil and condensing the vapors (i.e., distillation).

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	30872
Chemical Name:	Flammable Mixture
Flammable/Toxic:	Flammable
CAS Number:	00-11-11
Process ID:	37803
Description:	Units 10/11/12 - CVU
Prevention Program Level 3 ID:	21131
NAICS Code:	32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	15-Apr-2002
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Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	29-Nov-2001
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The Technique Used

What If:	
Checklist:	
What If/Checklist:	
HAZOP:	Yes
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	29-May-2003

Major Hazards Identified

Toxic Release:	
Fire:	Yes
Explosion:	Yes
Runaway Reaction:	
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	Yes
Contamination:	
Equipment Failure:	Yes

Loss of Cooling, Heating, Electricity, Instrument Air: Yes
 Earthquake: Yes
 Floods (Flood Plain):
 Tornado:
 Hurricanes:
 Other Major Hazard Identified:

Process Controls in Use

Vents: Yes
 Relief Valves: Yes
 Check Valves: Yes
 Scrubbers:
 Flares: Yes
 Manual Shutoffs: Yes
 Automatic Shutoffs: Yes
 Interlocks: Yes
 Alarms and Procedures: Yes
 Keyed Bypass:
 Emergency Air Supply:
 Emergency Power: Yes
 Backup Pump: Yes
 Grounding Equipment: Yes
 Inhibitor Addition: Yes
 Rupture Disks:
 Excess Flow Device:
 Quench System:
 Purge System:
 None:
 Other Process Control in Use:

Mitigation Systems in Use

Sprinkler System:
 Dikes:
 Fire Walls:
 Blast Walls:
 Deluge System: Yes
 Water Curtain:
 Enclosure:
 Neutralization:
 None:
 Other Mitigation System in Use: fire monitor; paved and sloped with drains

Monitoring/Detection Systems in Use

Process Area Detectors:
 Perimeter Monitors:
 None: Yes
 Other Monitoring/Detection System in Use:

Changes Since Last PHA Update

Reduction in Chemical Inventory:
 Increase in Chemical Inventory:

Change Process Parameters:
Installation of Process Controls: Yes
Installation of Process Detection Systems:
Installation of Perimeter Monitoring Systems:
Installation of Mitigation Systems:
None Recommended:
None:
Other Changes Since Last PHA or PHA Update:

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 19-Mar-2002

Training

Training Revision Date (The date of the most recent review or revision of training programs): 09-Apr-2002

The Type of Training Provided

Classroom: Yes
On the Job: Yes
Other Training:

The Type of Competency Testing Used

Written Tests: Yes
Oral Tests:
Demonstration: Yes
Observation: Yes
Other Type of Competency Testing Used:

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 14-Jun-2001

Equipment Inspection Date (The date of the most recent equipment inspection or test): 03-Jun-2002

Equipment Tested (Equipment most recently inspected or tested): 10-P1A, Crude Charge Pump

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 15-Apr-2002

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 01-Jun-2001

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 15-Apr-2002

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 13-Jul-2001

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 13-Jul-2002

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 12-Jan-2002

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 01-Sep-2002

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 31-May-2001

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 20-Sep-2001

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 01-Jun-1999

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 13-Jul-2000

Confidential Business Information

CBI Claimed:

Description

Manufactures high purity hydrogen for consumption in the hydrotreaters, the hydrocracker, and the mild hydrocracker.

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID: 30873
Chemical Name: Flammable Mixture
Flammable/Toxic: Flammable
CAS Number: 00-11-11

Process ID: 37804
Description: Unit 20 - HGU
Prevention Program Level 3 ID: 21132
NAICS Code: 32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised): 28-May-2002

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update): 12-Nov-2001

The Technique Used

What If:
Checklist:
What If/Checklist:
HAZOP: Yes
Failure Mode and Effects Analysis:
Fault Tree Analysis:
Other Technique Used:
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): 12-May-2003

Major Hazards Identified

Toxic Release:
Fire: Yes
Explosion: Yes
Runaway Reaction:
Polymerization:
Overpressurization: Yes
Corrosion: Yes
Overfilling:
Contamination:
Equipment Failure: Yes
Loss of Cooling, Heating, Electricity, Instrument Air:
Earthquake: Yes

Floods (Flood Plain):

Tornado:

Hurricanes:

Other Major Hazard Identified:

Process Controls in Use

Vents:	Yes
Relief Valves:	Yes
Check Valves:	Yes
Scrubbers:	
Flares:	Yes
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	
Emergency Air Supply:	
Emergency Power:	Yes
Backup Pump:	
Grounding Equipment:	Yes
Inhibitor Addition:	
Rupture Disks:	
Excess Flow Device:	
Quench System:	
Purge System:	
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	
Dikes:	
Fire Walls:	
Blast Walls:	
Deluge System:	
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	fire monitor; paved and sloped with drains

Monitoring/Detection Systems in Use

Process Area Detectors:	
Perimeter Monitors:	
None:	Yes
Other Monitoring/Detection System in Use:	

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	
Installation of Process Controls:	Yes

Installation of Process Detection Systems:
Installation of Perimeter Monitoring Systems:
Installation of Mitigation Systems:
None Recommended:
None:
Other Changes Since Last PHA or PHA Update:

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 11-Apr-2002

Training

Training Revision Date (The date of the most recent review or revision of training programs): 09-Apr-2002

The Type of Training Provided

Classroom: Yes
On the Job: Yes
Other Training:

The Type of Competency Testing Used

Written Tests: Yes
Oral Tests:
Demonstration: Yes
Observation: Yes
Other Type of Competency Testing Used:

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 14-Jun-2001

Equipment Inspection Date (The date of the most recent equipment inspection or test): 17-Jun-2002

Equipment Tested (Equipment most recently inspected or tested): 20-P18, Boiler Feedwater Pump

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 28-May-2002

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 01-Jun-2001

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 28-May-2002

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 13-Jul-2001

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 13-Jul-2002

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 20-Oct-2000

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 31-Jan-2001

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 31-May-2001

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 20-Sep-2001

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 01-Jun-1999

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 13-Jul-2000

Confidential Business Information

CBI Claimed:

Description

High temperature and catalyst are used to break or crack large hydrocarbon molecules such as diesel from the Crude Vacuum Unit, and gas oil and naphtha from the Delayed Coking Unit in Area 3.

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	30874
Chemical Name:	Flammable Mixture
Flammable/Toxic:	Flammable
CAS Number:	00-11-11

Process ID:	37805
Description:	Unit 21 - HCU
Prevention Program Level 3 ID:	21133
NAICS Code:	32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	13-Mar-2002
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Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	01-Jan-1998
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The Technique Used

What If:	
Checklist:	
What If/Checklist:	
HAZOP:	Yes
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	31-Dec-2002

Major Hazards Identified

Toxic Release:	
Fire:	Yes
Explosion:	Yes
Runaway Reaction:	Yes
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	
Contamination:	
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	

Earthquake:	Yes
Floods (Flood Plain):	
Tornado:	
Hurricanes:	
Other Major Hazard Identified:	

Process Controls in Use

Vents:	Yes
Relief Valves:	Yes
Check Valves:	Yes
Scrubbers:	
Flares:	Yes
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	
Emergency Air Supply:	
Emergency Power:	Yes
Backup Pump:	Yes
Grounding Equipment:	Yes
Inhibitor Addition:	Yes
Rupture Disks:	
Excess Flow Device:	
Quench System:	
Purge System:	
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	
Dikes:	
Fire Walls:	
Blast Walls:	
Deluge System:	Yes
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	fire monitor; paved & sloped with drains

Monitoring/Detection Systems in Use

Process Area Detectors:	
Perimeter Monitors:	
None:	Yes
Other Monitoring/Detection System in Use:	

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	Yes

Installation of Process Controls:	Yes
Installation of Process Detection Systems:	Yes
Installation of Perimeter Monitoring Systems:	
Installation of Mitigation Systems:	
None Recommended:	
None:	
Other Changes Since Last PHA or PHA Update:	change operational procedures; change in unit throughput

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures):	28-May-2002
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Training

Training Revision Date (The date of the most recent review or revision of training programs):	09-Apr-2002
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The Type of Training Provided

Classroom:	Yes
On the Job:	Yes
Other Training:	

The Type of Competency Testing Used

Written Tests:	Yes
Oral Tests:	
Demonstration:	Yes
Observation:	Yes
Other Type of Competency Testing Used:	

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures):	14-Jun-2001
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Equipment Inspection Date (The date of the most recent equipment inspection or test):	12-Jun-2002
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Equipment Tested (Equipment most recently inspected or tested):	21-P12, DC Charge Pump
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Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures):	13-Mar-2002
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Change Management Revision Date (The date of the most recent review or revision of management of change procedures):	01-Jun-2001
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Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 13-Mar-2002

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 13-Jul-2001

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 13-Jul-2002

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 16-Sep-2000

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 15-Apr-2001

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 31-May-2001

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 20-Sep-2001

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 01-Jun-1999

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 13-Jul-2000

Confidential Business Information

CBI Claimed:

Description

Provides a high octane blending component necessary to produce gasoline.

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	30875
Chemical Name:	Flammable Mixture
Flammable/Toxic:	Flammable
CAS Number:	00-11-11

Process ID:	37806
Description:	Unit 22 - CRU#4
Prevention Program Level 3 ID:	21134
NAICS Code:	32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	23-Apr-2001
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Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	01-Jan-1999
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The Technique Used

What If:	
Checklist:	
What If/Checklist:	
HAZOP:	Yes
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	31-Dec-2002

Major Hazards Identified

Toxic Release:	
Fire:	Yes
Explosion:	
Runaway Reaction:	
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	
Contamination:	
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	
Earthquake:	Yes

Floods (Flood Plain):
Tornado:
Hurricanes:
Other Major Hazard Identified:

Process Controls in Use

Vents:	Yes
Relief Valves:	Yes
Check Valves:	Yes
Scrubbers:	
Flares:	Yes
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	
Emergency Air Supply:	
Emergency Power:	Yes
Backup Pump:	Yes
Grounding Equipment:	Yes
Inhibitor Addition:	Yes
Rupture Disks:	
Excess Flow Device:	
Quench System:	
Purge System:	
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	
Dikes:	
Fire Walls:	
Blast Walls:	
Deluge System:	
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	fire monitor; paved & sloped with drains

Monitoring/Detection Systems in Use

Process Area Detectors:	
Perimeter Monitors:	
None:	Yes
Other Monitoring/Detection System in Use:	

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	Yes
Installation of Process Controls:	Yes

Installation of Process Detection Systems:
Installation of Perimeter Monitoring Systems:
Installation of Mitigation Systems:
None Recommended:
None:
Other Changes Since Last PHA or PHA Update:

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 28-May-2002

Training

Training Revision Date (The date of the most recent review or revision of training programs): 09-Apr-2002

The Type of Training Provided

Classroom: Yes
On the Job: Yes
Other Training:

The Type of Competency Testing Used

Written Tests: Yes
Oral Tests:
Demonstration: Yes
Observation: Yes
Other Type of Competency Testing Used:

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 14-Jun-2001

Equipment Inspection Date (The date of the most recent equipment inspection or test): 14-Jun-2002

Equipment Tested (Equipment most recently inspected or tested): 22-P11, Charge Pump

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 23-Apr-2001

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 01-Jun-2001

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 23-Apr-2001

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 13-Jul-2001

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 13-Jul-2002

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 21-Jan-1999

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 26-Jan-2000

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 31-May-2001

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 20-Sep-2001

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 01-Jun-1999

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 13-Jul-2000

Confidential Business Information

CBI Claimed:

Description

Separates and purifies liquefied petroleum gas (LPG) streams from the CVU, the reformers, and the hydrocracker. (Also known as Saturated Gas Plant.)

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	30876
Chemical Name:	Flammable Mixture
Flammable/Toxic:	Flammable
CAS Number:	00-11-11

Process ID:	37807
Description:	Unit 24 - SGP
Prevention Program Level 3 ID:	21135
NAICS Code:	32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	04-Apr-2002
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Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	01-May-1999
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The Technique Used

What If:	
Checklist:	
What If/Checklist:	
HAZOP:	Yes
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	01-May-1999

Major Hazards Identified

Toxic Release:	
Fire:	Yes
Explosion:	Yes
Runaway Reaction:	
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	
Contamination:	
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	Yes

Earthquake:	Yes
Floods (Flood Plain):	
Tornado:	
Hurricanes:	
Other Major Hazard Identified:	

Process Controls in Use

Vents:	
Relief Valves:	Yes
Check Valves:	Yes
Scrubbers:	
Flares:	Yes
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	
Emergency Air Supply:	
Emergency Power:	Yes
Backup Pump:	Yes
Grounding Equipment:	Yes
Inhibitor Addition:	
Rupture Disks:	
Excess Flow Device:	
Quench System:	
Purge System:	
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	
Dikes:	
Fire Walls:	
Blast Walls:	
Deluge System:	
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	fire monitors; paved & sloped with drains

Monitoring/Detection Systems in Use

Process Area Detectors:	
Perimeter Monitors:	
None:	Yes
Other Monitoring/Detection System in Use:	

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	

Installation of Process Controls:	Yes
Installation of Process Detection Systems:	
Installation of Perimeter Monitoring Systems:	
Installation of Mitigation Systems:	
None Recommended:	
None:	
Other Changes Since Last PHA or PHA Update:	

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures):	17-Oct-2001
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Training

Training Revision Date (The date of the most recent review or revision of training programs):	09-Apr-2002
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The Type of Training Provided

Classroom:	Yes
On the Job:	Yes
Other Training:	

The Type of Competency Testing Used

Written Tests:	Yes
Oral Tests:	
Demonstration:	Yes
Observation:	Yes
Other Type of Competency Testing Used:	

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures):	14-Jun-2001
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Equipment Inspection Date (The date of the most recent equipment inspection or test):	13-Jun-2002
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Equipment Tested (Equipment most recently inspected or tested):	24-P15, Deethanizer Reflux Pump
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Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures):	04-Apr-2002
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Change Management Revision Date (The date of the most recent review or revision of management of change procedures):	01-Jun-2001
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Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 04-Apr-2002

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 13-Jul-2001

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 13-Jul-2002

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)):

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation):

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 31-May-2001

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 20-Sep-2001

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 01-Jun-1999

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 13-Jul-2000

Confidential Business Information

CBI Claimed:

Description

Consists of a closed circulation system in which an amine solution removes hydrogen sulfide (H₂S) from sour liquid and gas streams.

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	30877
Chemical Name:	Flammable Mixture
Flammable/Toxic:	Flammable
CAS Number:	00-11-11

Process ID:	37808
Description:	Unit 25 - MEA
Prevention Program Level 3 ID:	21136
NAICS Code:	32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	29-Apr-2001
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Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	01-Jun-1997
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The Technique Used

What If:	
Checklist:	
What If/Checklist:	
HAZOP:	Yes
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	31-Dec-2002

Major Hazards Identified

Toxic Release:	
Fire:	Yes
Explosion:	Yes
Runaway Reaction:	
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	
Contamination:	
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	Yes

Earthquake:	Yes
Floods (Flood Plain):	
Tornado:	
Hurricanes:	
Other Major Hazard Identified:	

Process Controls in Use

Vents:	
Relief Valves:	Yes
Check Valves:	Yes
Scrubbers:	
Flares:	Yes
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	
Emergency Air Supply:	
Emergency Power:	Yes
Backup Pump:	Yes
Grounding Equipment:	Yes
Inhibitor Addition:	Yes
Rupture Disks:	
Excess Flow Device:	
Quench System:	
Purge System:	
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	
Dikes:	
Fire Walls:	
Blast Walls:	
Deluge System:	
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	fire monitors; paved & sloped with drains

Monitoring/Detection Systems in Use

Process Area Detectors:	
Perimeter Monitors:	
None:	Yes
Other Monitoring/Detection System in Use:	

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	Yes

Installation of Process Controls:	Yes
Installation of Process Detection Systems:	Yes
Installation of Perimeter Monitoring Systems:	
Installation of Mitigation Systems:	
None Recommended:	
None:	
Other Changes Since Last PHA or PHA Update:	change in operational procedures

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures):	24-Apr-2002
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Training

Training Revision Date (The date of the most recent review or revision of training programs):	09-Apr-2002
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The Type of Training Provided

Classroom:	Yes
On the Job:	Yes
Other Training:	

The Type of Competency Testing Used

Written Tests:	Yes
Oral Tests:	
Demonstration:	Yes
Observation:	Yes
Other Type of Competency Testing Used:	

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures):	14-Jun-2001
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Equipment Inspection Date (The date of the most recent equipment inspection or test):	14-Jun-2002
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Equipment Tested (Equipment most recently inspected or tested):	25-P15, Lean Amine Circulation Pump
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Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures):	29-Apr-2001
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Change Management Revision Date (The date of the most recent review or revision of management of change procedures):	01-Jun-2001
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Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 29-Apr-2001

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 13-Jul-2001

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 13-Jul-2002

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)):

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation):

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 31-May-2001

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 20-Sep-2001

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 01-Jun-1999

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 13-Jul-2000

Confidential Business Information

CBI Claimed:

Description

Removes nitrogen and sulfur contaminants from feed naphtha.

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	30878
Chemical Name:	Flammable Mixture
Flammable/Toxic:	Flammable
CAS Number:	00-11-11

Process ID:	37809
Description:	Unit 26 - HTU#3
Prevention Program Level 3 ID:	21137
NAICS Code:	32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	23-Jan-2002
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Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	01-Aug-1998
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The Technique Used

What If:	
Checklist:	
What If/Checklist:	
HAZOP:	Yes
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	28-Mar-2002

Major Hazards Identified

Toxic Release:	
Fire:	Yes
Explosion:	Yes
Runaway Reaction:	Yes
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	Yes
Contamination:	Yes
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	Yes
Earthquake:	Yes

Floods (Flood Plain):
Tornado:
Hurricanes:
Other Major Hazard Identified:

Process Controls in Use

Vents:	Yes
Relief Valves:	Yes
Check Valves:	Yes
Scrubbers:	
Flares:	Yes
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	
Emergency Air Supply:	
Emergency Power:	Yes
Backup Pump:	Yes
Grounding Equipment:	Yes
Inhibitor Addition:	Yes
Rupture Disks:	
Excess Flow Device:	
Quench System:	
Purge System:	
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	
Dikes:	
Fire Walls:	
Blast Walls:	
Deluge System:	
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	fire monitors; paved & sloped with drains

Monitoring/Detection Systems in Use

Process Area Detectors:	
Perimeter Monitors:	
None:	Yes
Other Monitoring/Detection System in Use:	

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	Yes
Installation of Process Controls:	Yes

Installation of Process Detection Systems:	Yes
Installation of Perimeter Monitoring Systems:	
Installation of Mitigation Systems:	
None Recommended:	
None:	
Other Changes Since Last PHA or PHA Update:	change in operational procedures

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures):	07-May-2002
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Training

Training Revision Date (The date of the most recent review or revision of training programs):	09-Apr-2002
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The Type of Training Provided

Classroom:	Yes
On the Job:	Yes
Other Training:	

The Type of Competency Testing Used

Written Tests:	Yes
Oral Tests:	
Demonstration:	Yes
Observation:	Yes
Other Type of Competency Testing Used:	

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures):	14-Jun-2001
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Equipment Inspection Date (The date of the most recent equipment inspection or test):	14-Jun-2002
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Equipment Tested (Equipment most recently inspected or tested):	26-P15, Stripper Reflux Pump
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Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures):	23-Jan-2002
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Change Management Revision Date (The date of the most recent review or revision of management of change procedures):	01-Jun-2001
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Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 23-Jan-2002

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 13-Jul-2001

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 13-Jul-2002

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)):

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation):

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 31-May-2001

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 20-Sep-2001

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 01-Jun-1999

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 13-Jul-2000

Confidential Business Information

CBI Claimed:

Description

Converts a portion of benzene in gasoline to cyclohexane to achieve maximum benzene concentration specifications.

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	30879
Chemical Name:	Flammable Mixture
Flammable/Toxic:	Flammable
CAS Number:	00-11-11

Process ID:	37810
Description:	Unit 27 - CD Hydro
Prevention Program Level 3 ID:	21138
NAICS Code:	32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	23-Apr-2001
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Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	01-Sep-2000
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The Technique Used

What If:	
Checklist:	
What If/Checklist:	
HAZOP:	Yes
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	31-Dec-2003

Major Hazards Identified

Toxic Release:	
Fire:	Yes
Explosion:	Yes
Runaway Reaction:	
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	
Contamination:	
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	
Earthquake:	Yes

Floods (Flood Plain):
Tornado:
Hurricanes:
Other Major Hazard Identified:

Process Controls in Use

Vents:	Yes
Relief Valves:	Yes
Check Valves:	Yes
Scrubbers:	
Flares:	Yes
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	
Alarms and Procedures:	Yes
Keyed Bypass:	
Emergency Air Supply:	
Emergency Power:	Yes
Backup Pump:	Yes
Grounding Equipment:	Yes
Inhibitor Addition:	
Rupture Disks:	
Excess Flow Device:	
Quench System:	
Purge System:	
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	
Dikes:	
Fire Walls:	
Blast Walls:	
Deluge System:	
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	fire monitors; paved & sloped with drains

Monitoring/Detection Systems in Use

Process Area Detectors:	
Perimeter Monitors:	
None:	Yes
Other Monitoring/Detection System in Use:	

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	
Installation of Process Controls:	Yes

Installation of Process Detection Systems:
Installation of Perimeter Monitoring Systems:
Installation of Mitigation Systems:
None Recommended:
None:
Other Changes Since Last PHA or PHA Update:

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 29-Nov-2001

Training

Training Revision Date (The date of the most recent review or revision of training programs): 09-Apr-2002

The Type of Training Provided

Classroom: Yes
On the Job: Yes
Other Training:

The Type of Competency Testing Used

Written Tests: Yes
Oral Tests:
Demonstration: Yes
Observation: Yes
Other Type of Competency Testing Used:

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 14-Jun-2001

Equipment Inspection Date (The date of the most recent equipment inspection or test): 18-Jun-2002

Equipment Tested (Equipment most recently inspected or tested): 27-P1A, CD Hydro Bottoms Pump

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 23-Apr-2001

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 01-Jun-2001

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 23-Apr-2001

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 13-Jul-2001

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 13-Jul-2002

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)):

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation):

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 31-May-2001

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 20-Sep-2001

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 01-Jun-1999

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 13-Jul-2000

Confidential Business Information

CBI Claimed:

Description

Storage, interplant transfer, blending, dewatering, chemical treatment, pipeline receiving and shipping, rail receiving and shipping, and truck loading / unloading of crude oils, intermediate products, additives, chemicals, and finished products.

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	30880
Chemical Name:	Flammable Mixture
Flammable/Toxic:	Flammable
CAS Number:	00-11-11
Process ID:	37811
Description:	Unit 70 -Area 1 Tank Farm
Prevention Program Level 3 ID:	21139
NAICS Code:	32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	29-May-2002
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Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	04-Mar-2002
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The Technique Used

What If:	Yes
Checklist:	
What If/Checklist:	
HAZOP:	
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	04-Sep-2003

Major Hazards Identified

Toxic Release:	
Fire:	Yes
Explosion:	Yes
Runaway Reaction:	
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	Yes
Contamination:	Yes
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	

Earthquake:	Yes
Floods (Flood Plain):	
Tornado:	
Hurricanes:	
Other Major Hazard Identified:	

Process Controls in Use

Vents:	Yes
Relief Valves:	Yes
Check Valves:	Yes
Scrubbers:	
Flares:	Yes
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	
Emergency Air Supply:	
Emergency Power:	Yes
Backup Pump:	Yes
Grounding Equipment:	Yes
Inhibitor Addition:	
Rupture Disks:	
Excess Flow Device:	
Quench System:	
Purge System:	
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	
Dikes:	Yes
Fire Walls:	
Blast Walls:	
Deluge System:	
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	fire monitors

Monitoring/Detection Systems in Use

Process Area Detectors:	
Perimeter Monitors:	
None:	Yes
Other Monitoring/Detection System in Use:	

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	

Installation of Process Controls: Yes
Installation of Process Detection Systems:
Installation of Perimeter Monitoring Systems:
Installation of Mitigation Systems:
None Recommended:
None:
Other Changes Since Last PHA or PHA Update:

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 20-Jun-2002

Training

Training Revision Date (The date of the most recent review or revision of training programs): 09-Apr-2002

The Type of Training Provided

Classroom: Yes
On the Job: Yes
Other Training:

The Type of Competency Testing Used

Written Tests: Yes
Oral Tests:
Demonstration: Yes
Observation: Yes
Other Type of Competency Testing Used:

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 14-Jun-2001

Equipment Inspection Date (The date of the most recent equipment inspection or test): 31-Dec-2001

Equipment Tested (Equipment most recently inspected or tested): 70-P110A, Crude Transfer Pump

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 29-May-2002

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 01-Jun-2001

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 29-May-2002

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 13-Jul-2001

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 13-Jul-2002

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)):

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation):

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 31-May-2001

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 20-Sep-2001

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 01-Jun-1999

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 13-Jul-2000

Confidential Business Information

CBI Claimed:

Description

Storage, interplant transfer, blending, dewatering, chemical treatment, pipeline receiving and shipping, rail receiving and shipping, and truck loading / unloading of crude oils, intermediate products, additives, chemicals, and finished products.

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	30881
Chemical Name:	Flammable Mixture
Flammable/Toxic:	Flammable
CAS Number:	00-11-11
Process ID:	37812
Description:	Unit 71 -Area 2 Tank Farm
Prevention Program Level 3 ID:	21140
NAICS Code:	32411
Prevention Program Chemical ID:	30882
Chemical Name:	Ammonia (anhydrous)
Flammable/Toxic:	Toxic
CAS Number:	7664-41-7
Process ID:	37812
Description:	Unit 71 -Area 2 Tank Farm
Prevention Program Level 3 ID:	21140
NAICS Code:	32411

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	30-Apr-2002
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Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	22-Jan-2002
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The Technique Used

What If:	Yes
Checklist:	
What If/Checklist:	
HAZOP:	Yes
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	22-Jul-2003

Major Hazards Identified

Toxic Release:	Yes
Fire:	Yes
Explosion:	Yes
Runaway Reaction:	
Polymerization:	
Overpressurization:	Yes
Corrosion:	Yes
Overfilling:	Yes
Contamination:	
Equipment Failure:	Yes
Loss of Cooling, Heating, Electricity, Instrument Air:	Yes
Earthquake:	Yes
Floods (Flood Plain):	
Tornado:	
Hurricanes:	
Other Major Hazard Identified:	

Process Controls in Use

Vents:	Yes
Relief Valves:	Yes
Check Valves:	Yes
Scrubbers:	
Flares:	Yes
Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	
Emergency Air Supply:	
Emergency Power:	Yes
Backup Pump:	Yes
Grounding Equipment:	Yes
Inhibitor Addition:	
Rupture Disks:	
Excess Flow Device:	
Quench System:	
Purge System:	
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	
Dikes:	Yes
Fire Walls:	
Blast Walls:	
Deluge System:	Yes
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	fire monitors

Monitoring/Detection Systems in Use

Process Area Detectors:
Perimeter Monitors:
None: Yes
Other Monitoring/Detection System in Use:

Changes Since Last PHA Update

Reduction in Chemical Inventory:
Increase in Chemical Inventory:
Change Process Parameters:
Installation of Process Controls: Yes
Installation of Process Detection Systems:
Installation of Perimeter Monitoring Systems:
Installation of Mitigation Systems:
None Recommended:
None:
Other Changes Since Last PHA or PHA Update:

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 20-Jun-2002

Training

Training Revision Date (The date of the most recent review or revision of training programs): 09-Apr-2002

The Type of Training Provided

Classroom: Yes
On the Job: Yes
Other Training:

The Type of Competency Testing Used

Written Tests: Yes
Oral Tests:
Demonstration: Yes
Observation: Yes
Other Type of Competency Testing Used:

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 14-Jun-2001

Equipment Inspection Date (The date of the most recent equipment inspection or test): 29-Jan-2002

Equipment Tested (Equipment most recently inspected or tested):

71-P85, Natural Gasoline Transfer Pump

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures):

30-Apr-2002

Change Management Revision Date (The date of the most recent review or revision of management of change procedures):

01-Jun-2001

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review):

30-Apr-2002

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit):

13-Jul-2001

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit):

13-Jul-2002

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)):

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation):

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans):

31-May-2001

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures):

20-Sep-2001

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures):

01-Jun-1999

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance):

13-Jul-2000

Confidential Business Information

CBI Claimed:

Section 8. Program Level 2

No records found.

Section 9. Emergency Response

Written Emergency Response (ER) Plan

Community Plan (Is facility included in written community emergency response plan?): Yes

Facility Plan (Does facility have its own written emergency response plan?): Yes

Response Actions (Does ER plan include specific actions to be taken in response to accidental releases of regulated substance(s)?): Yes

Public Information (Does ER plan include procedures for informing the public and local agencies responding to accidental release?): Yes

Healthcare (Does facility's ER plan include information on emergency health care?): Yes

Emergency Response Review

Review Date (Date of most recent review or update of facility's ER plan): 18-Sep-2001

Emergency Response Training

Training Date (Date of most recent review or update of facility's employees): 17-May-2002

Local Agency

Agency Name (Name of local agency with which the facility ER plan or response activities are coordinated): Kern County Fire Department

Agency Phone Number (Phone number of local agency with which the facility ER plan or response activities are coordinated): (661) 391-7000

Subject to

OSHA Regulations at 29 CFR 1910.38: Yes

OSHA Regulations at 29 CFR 1910.120: Yes

Clean Water Regulations at 40 CFR 112: Yes

RCRA Regulations at CFR 264, 265, and 279.52: Yes

OPA 90 Regulations at 40 CFR 112, 33 CFR 154, 49 CFR 194, or 30 CFR 254: Yes

State EPCRA Rules or Laws: Yes

Other (Specify):

Executive Summary

Risk Management Plan

Shell Oil Products, U.S.

Bakersfield Refinery - Areas 1 and 2

Executive Summary

This is the Risk Management Plan (RMP) for Areas 1 and 2 of the Shell Oil Products US Bakersfield Refinery (SBR). The RMP is required under the U.S. Environmental Protection Agency (EPA) Risk Management Program codified in 40 Code of Federal Regulations, Part 68 (40 CFR 68). This RMP is being updated due to the removal of a covered process in accordance with 40 CFR 68.190(b)(7). SBR removed chlorine, a covered toxic substance, from Areas 1 and 2 on January 3, 2002.

Refining operations are primarily conducted in Areas 1 and 2, which are on contiguous properties. SBR also has delayed coking operations in Area 3, which is not adjacent to Areas 1 and 2. A separate RMP submittal has been prepared for Area 3.

The purpose of the Risk Management Program is to identify and prevent potential accidental releases of specific "regulated substances" that have the potential to cause harm to the public and the environment. "Regulated substances" are hazardous chemicals identified by EPA. SBR has quantities of various "regulated substances" above the threshold amounts.

The remainder of the Executive Summary is organized as follows:

Section 1: Accidental Release Prevention and Emergency Response Policies at SBR

Section 2: Overview of Regulated Substances at SBR

Section 3: Worst Case Release Scenarios and Alternative Release Scenarios

Section 4: SBR Accidental Release Prevention Program

Section 5: Five-Year Accidental Release Summary

Section 6: Emergency Response Program

Section 7: Planned Changes to Improve Safety

Section 1: Accidental Release Prevention and Emergency Response Policies at SBR

Equipment at the various units must be designed, operated, and maintained in full compliance with applicable internal engineering standards, accepted industry codes, or industry standards. Systems and procedures are in place to control changes in process technology, facilities, operating procedures, and maintenance procedures, in order to provide for continued safe and reliable operations.

All employees at SBR have the responsibility to protect the environment and to ensure the safety and security of his/her fellow workers. Written policies and standards are in place to ensure:

- * The safety and health of employees and other workers at the site;
- * Protection of the environment;
- * Reliable and efficient operation of the facilities;
- * Minimization of the risk of product or property losses; and
- * Maintaining a positive relationship with the communities adjacent to our facility.

These written policies and standards are discussed further elsewhere in this submittal.

Section 2: Overview of Regulated Substances at SBR

SBR began operations as Getty Oil in 1932. Under different owners, regular expansion and improvements of facilities have occurred over the years, including the integration of an adjacent refinery in 1986 that doubled gasoline production. In 1998, the refinery became a part of Equilon Enterprises, LLC, a joint venture of Shell Oil Company and Texaco Inc. Shell Oil Products US acquired Texaco's interest in 2002.

SBR refines crude oil into a number of consumer products, including gasoline, diesel, gasoils, liquified petroleum gases (LPG), ammonia (for local agricultural use), and coke.

Table 1 lists the covered process units that are subject to the federal Risk Management Program, defines the appropriate RMP program level, and identifies the regulated substances handled in these units.

Table 1

Summary of Covered Process Units - SBR Areas 1 and 2

Crude Vacuum Unit

(Units 10, 11, and 12)

Physically separates crude oil into intermediate and final products by boiling the crude oil and condensing the vapors (i.e., distillation).

Federal RMP Program Level: Level 3

Regulated Toxic Substances: None

Regulated Flammable Substances: Ethane, Propane, Isobutane, Butane, Isopentane, Pentane

Hydrogen Generation Unit (Unit 20) Manufactures high purity hydrogen for consumption in the hydrotreaters, the hydrocracker, and the mild hydrocracker.

Federal RMP Program Level: Level 3

Regulated Toxic Substances: None

Regulated Flammable Substances: Methane

Hydrocracking Unit (Unit 21)

High temperature and catalyst are used to break or crack large hydrocarbon molecules such as diesel from the Crude Vacuum Unit, and gas oil and naphtha from the Delayed Coking Unit in Area 3.

Federal RMP Program Level: Level 3

Regulated Toxic Substances: None

Regulated Flammable Substances: Hydrogen, Methane, Ethane, Propane, Butane, Pentane

Catalytic Reforming Unit (Unit 22)

Provides a high octane blending component necessary to produce gasoline.

Federal RMP Program Level: Level 3

Regulated Toxic Substances: None

Regulated Flammable Substances: Ethane, Propane, Isobutane, Butane

De-Isobutanizer Unit (Unit 24)

Separates and purifies liquefied petroleum gas (LPG) streams from the CVU, the reformers, and the hydrocracker. (Also known as Saturated Gas Plant.)

Federal RMP Program Level: Level 3

Regulated Toxic Substances: None

Regulated Flammable Substances: Ethane, Propane, Isobutane, Butane, Isopentane, Pentane

Amine Treating Unit (Unit 25)

Consists of a closed circulation system in which an amine solution removes hydrogen sulfide (H₂S) from sour liquid and gas streams.

Federal RMP Program Level: Level 3

Regulated Toxic Substances: None

Regulated Flammable Substances: Methane, Ethane, Propane, Butane, Isopentane, Pentane

Hydrotreating (Unit 26)

Removes nitrogen and sulfur contaminants from feed naphtha.

Federal RMP Program Level: Level 3

Regulated Toxic Substances: None

Regulated Flammable Substances: Hydrogen, Methane, Ethane, Propane, Isobutane, Butane, Isopentane, Pentane

CD Hydro Unit (Unit 27)

Converts a portion of benzene in gasoline to cyclohexane to achieve maximum benzene concentration specifications.

Federal RMP Program Level: Level 3

Regulated Toxic Substances: None

Regulated Flammable Substances: Propane, Isobutane, Butane, Isopentane, Pentane

Area 1 Tank Farm (Unit 70)

Storage, interplant transfer, blending, dewatering, chemical treatment, pipeline receiving and shipping, rail receiving and shipping, and truck loading / unloading of crude oils, intermediate products, additives, chemicals, and finished products.

Federal RMP Program Level: Level 3

Regulated Toxic Substances: None

Regulated Flammable Substances: Methane, Ethane, Butane, Isopentane, Pentane

Area 2 Tank Farm (Unit 71)

Storage, interplant transfer, blending, dewatering, chemical treatment, pipeline receiving and shipping, rail receiving and shipping, and truck loading / unloading of crude oils, intermediate products, additives, chemicals, and finished products.

Federal RMP Program Level: Level 3

Regulated Toxic Substances: Ammonia (Anhydrous)

Regulated Flammable Substances: Methane, Ethane, Propane, Propylene, Isobutane, Butane, Isopentane, Pentane,

Section 3: Worst Case Release Scenarios and Alternative Release Scenarios

Offsite consequence analyses are essential in identifying potential hazards of accidental releases. The results of the analyses are used to assist the Kern County Environmental Health Services Department and Fire Department in its emergency response planning.

3.1 Worst-Case Scenarios

SBR conducted offsite consequence analyses for the worst-case scenarios (WCS) using the Environmental Protection Agency's (EPA) RMP Offsite Consequence Analysis Guidelines (OCAG). This methodology was used because the RMP rule set forth specific criteria that must be followed for modeling the worst-case scenarios. The worst case scenarios must incorporate very conservative, simplified assumptions about the nature of the releases and the resulting emission rates into the air.

The EPA has defined the worst-case release scenario as one that results in the greatest distance from the point of release to a specified "endpoint". As defined by the rule, the endpoint for toxics substances is a specified concentration, and for flammables is a specified overpressure from a vapor cloud explosion (VCE).

The worst-case scenario for a regulated toxic is one where the total quantity in the largest vessel or pipe is released over 10 minutes, resulting in acute health effects associated with airborne exposure. For a regulated flammable, the worst-case scenario is one where the total quantity of regulated flammable in the largest vessel or pipe is assumed to vaporize and instantaneously result in a vapor cloud explosion.

A summary of the worst-case scenarios for SBR Areas 1 and 2 is provided in Table 2. As required by the RMP rule, the results are shown for one vessel containing a toxic substance (ammonia) and one vessel containing flammables. These scenarios produced the greatest distance to their respective toxic and flammable endpoints.

Table 2

Worst-Case Scenario Results - SBR Areas 1 and 2

Regulated Substance: Ammonia, Anhydrous (toxic gas)

Area/Unit: Area 2 Tank Farm

Administrative Controls Considered: Quantity stored limited to 80% of capacity by written operating procedures

Passive Mitigation Considered: None

Offsite Impacts: Yes

Regulated Substance: Flammable Liquid

Area/Unit: Area 2 Tank Farm

Administrative Controls Considered: Quantity stored limited to 87% of capacity by written operating procedures

Passive Mitigation Considered: None

Offsite Impacts: Yes

3.2 Alternative Release Scenarios

In addition to worst case scenarios, this RMP contains a second set of release scenarios designated as alternative release scenarios (ARS). These scenarios are more realistic than worst-case scenarios for assessing the potential hazards posed by process units and developing emergency response plans. Although these scenarios may be unlikely to occur, they are physically possible and reasonably feasible.

EPA OCAG procedures were not used for modeling the alternative release scenarios. More flexibility is provided for in characterizing releases and assessing the impacts for the alternative release scenarios. SBR used the "PHAST Professional" model by DNV Technica for the ARS. PHASTProfessional is an advanced consequence modeling program that examines the progress of a potential incident from initial release, through the formation of a cloud and/or liquid pool, and on to final dispersion and flammable/toxic effects.

A summary of the alternative release scenarios for SBR Areas 1 and 2 is provided in Table 3. There is one scenario for each toxic substance and one for flammables. The ammonia release and the flammable release were assumed to be stopped after 60 minutes, though a longer duration would not change the results presented.

Table 3

Alternative Release Scenario Results - SBR Areas 1 and 2

Regulated Substance: Ammonia, Anhydrous (toxic gas)

Area/Unit: Area 2 Tank Farm

Administrative Controls Considered: Quantity stored limited to 80% of capacity by written operating procedures

Active/Passive Mitigation Considered: A dike around the tank limits the exposed surface area of the pool, reducing the release rate

Offsite Impacts: Yes

Regulated Substance: Flammable Liquid

Area/Unit: Area 2 Tank Farm

Administrative Controls Considered: Quantity stored limited to 87% of capacity by written operating procedures

Active/Passive Mitigation Considered: None

Offsite Impacts: No

Section 4: SBR Accidental Release Prevention Program

This section describes the general accident prevention programs in place at SBR. This program is required for all level 3 covered process units described in Section 2, Table 1, and is applied throughout the facility.

Employees are responsible for implementing the prevention elements for his/her department as follows:

Safety Group

Process Hazards Analyses

Compliance Audits

Employee Participation

Incident Investigation

Hot Work Procedure

Emergency Response

Training Department

Operating Procedures

Employee Training

Operations Department

Management of Change

Pre-Startup Safety Reviews

Incident Investigation

Maintenance Department
Contractors

Production Services Department
Mechanical Integrity

Project Engineering
Process Safety Information

Asset Manager
Incident Investigation

All records associated with the prevention elements and the Risk Management Program are retained for a minimum of five years.

4.1 Process Safety Information

SBR maintains a variety of technical documents that are used to help ensure safe operations of the process units. Process Safety Information (PSI), which addresses chemical properties and associated hazards, limits for key process parameters, limits for specific chemical inventories, and equipment design information, was compiled for each process unit.

PSI is used in process unit hazard analyses, inspection, maintenance, and training activities. This information is kept current by management of change and pre-startup safety review procedures, which are discussed further in this section.

This information, in combination with written procedures and trained personnel, provides a basis for establishing inspection and maintenance activities, as well as for evaluating proposed process and facility changes to ensure that safety features in the process are not compromised.

4.2 Process Hazards Analysis

SBR conducts process hazards analyses (PHAs) to ensure that hazards associated with process units are identified and controlled. Under this program, each process is systematically examined by a multi-disciplinary team to identify hazards that could result in an accidental release of a regulated substance and to ensure that adequate control is in place to manage those hazards. SBR has used the hazard and operability study methodology as the refinery's primary process hazards analysis technique. Some of the revalidation has been done using the "what if" and risk matrix methodologies. Pertinent parameters, such as flow, temperature, pressure, and liquid level, were reviewed.

To help ensure that the process controls or process hazards do not deviate significantly from the original design safety features, SBR updates and revalidates the hazard analyses every five years.

As part of the technical studies, SBR conducted a seismic review of the refinery. The refinery is located in an area that is prone to earthquakes. A site walk through was conducted in 1996 by a qualified engineering company. The objective of seismic assessments was to provide reasonable assurance that a release of regulated substance having off-site consequence would not occur as a result of a major earthquake. The results and findings from the seismic review are documented and retained in the computerized tracking system.

4.3 Operating Procedures

SBR has developed and implemented written operating procedures that provide clear instructions for safely conducting activities involved in each process. The written operating procedures address the various modes of process operations, such as unit startup, normal operations, temporary operations, emergency shutdown, normal shutdown, and initial startup of a new process.

These procedures are used as references by experienced operators and for consistent training of new operators. The procedures are maintained current and accurate by revising them to reflect changes made through the management of change process and through annual certification.

4.4 Training

SBR's general policy requires operating personnel to be trained in the safe operation of facilities, handling process upsets, emergency response, and personal safety. Employees who understand the process and how to safely operate a process can significantly decrease the number and severity of incidents.

Refresher training for all operations and maintenance employees in Safety, Health, and Environmental subjects and operating procedures (as appropriate) is provided at varying intervals, depending upon requirements.

4.5 Management of Change

A Management of Change (MOC) review is required for modifications to facilities or changes to process unit operating conditions. The procedure does not apply to "replacement in kind" which is defined as replacements that satisfy the design specifications.

The MOC process is intended to assess the impact of proposed changes on process safety, the environment, operability, reliability, and product quality in process units. The requirements for Management of Change are documented in a written procedure. Management of Change information is kept for the life of the process unit.

4.6 Pre-Startup Safety Reviews

The purpose of the Pre-Startup Safety Review is to ensure safety features, procedures, personnel, and the equipment are appropriately prepared for startup prior to placing the equipment into service. This review provides additional assurance that construction is in accordance with the design specifications and that all systems are operationally ready. The Pre-Startup Safety Review also verifies that accident prevention program requirements are properly implemented.

Pre-startup reviews are governed by a written Pre-Startup Safety review procedure and covers a variety of issues, including:

- * construction and/or equipment are in accordance with design specifications;
- * safety, operating, maintenance, and emergency procedures are in place and are adequate;
- * for new facilities, a process hazard analysis has been performed and recommendations have been resolved or implemented before start-up;
- * modified facilities have complied with MOC requirements including updating of the process safety information (e.g., piping instrument diagrams, operating procedures, etc.);
- * training of each applicable operating employee and maintenance worker has been completed.

4.7 Mechanical Integrity

SBR has established and implemented written procedures to maintain the ongoing integrity of process equipment, pressure vessels and storage tanks, relief and vent systems and devices, emergency shutdown systems, and controls.

The SBR mechanical integrity program follows recognized and generally accepted good engineering practices. SBR maintains a certification record that each inspection and test has been performed, which includes the date of the inspection, the name of the inspector and test, and the serial number or other identifier of the equipment. Every recommendation made by an inspector is resolved and documented. In so doing, SBR will correct deficiencies in equipment which are outside acceptable limits (as defined by the process safety information) before further use, or in a safe and timely manner that ensures safe operation.

4.8 Compliance Audits

To ensure that the accident prevention program is functioning properly, SBR conducts audits every three years to assure that the accident prevention program is being implemented. The audits include an assessment of written prevention program elements, retained records (e.g., training records, completed hot work permits, etc.), and personnel interviews to assess level of implementation for the prevention program.

Compliance reviews are performed by trained, expert personnel. Audit results are communicated to affected employees and contractors, and retained for five years. Action items or recommendation resulting from the various audits are tracked to completion through a computerized database.

4.9 Incident Investigation

The SBR accident investigation program covers four types of incidents:

- * personal injury;

- * environmental release;
- * equipment damage and loss of production caused by fire, equipment failure or other circumstance; and
- * those incidents that could have reasonably resulted in a catastrophic event.

The goal of an investigation is to determine the facts associated with a release or near miss and to develop corrective actions to prevent a recurrence of the incident or a similar incident. The investigation team is directed by a team leader who has had training in incident investigation and root cause analysis.

The results of the investigation are communicated to all employees. SBR maintains copies of incident investigation reports for a minimum of five years. Corrective measures and action items resulting from an investigation are tracked to completion in a computerized database.

4.10 Employee Participation

All SBR employees have the right to participate in the development and conduct of process safety management activities as stated in the Risk Management and Process Safety Management rules. It is the policy and practice of SBR to encourage employee participation in all aspects of accidental release prevention elements.

All process safety records are available for review by employees and the Joint Health and Safety Committee.

4.11 Safe Work Practices

SBR Safe Work Practices include Hot Work, Confined Space Entry, Lock Out/Tagout, Line Entry, and various other types of work covered under a Departmental Safety Permit.

The SBR Hot Work permit certifies that the various portions of fire prevention and protection requirements have been implemented prior to beginning hot work operations. This procedure documents the date(s) authorized for hot work, identifies the equipment on which hot work is to be done, and assures that all personnel involved in permitting are trained on this procedure.

4.12 Contractors

Contractors at SBR are selected based on their past safety performance, their current safety programs, and their conformance to the SBR Refinery Safety Rules and Regulations Manual.

The SBR Refinery Safety Rules and Regulations Manual provides contractor employees safety information, including entrance and exit procedures, safe work practices and work permitting procedures, emergency action plans, process safety information, and contractor injury/illness reporting.

SBR also requires annual contractor orientation training, which includes information on the emergency action plan, potential process hazards, and site safety rules. Proof of training is provided via renewable access cards.

Section 5. Five-Year Accidental Release Summary

SBR compiled a five-year accident history for accidental releases from covered processes in Areas 1 and 2 that resulted in deaths, injuries, or significant property damage on site, or known offsite deaths, injuries, evacuations, sheltering in place, property damage or environmental damage. The compilation of this information satisfies the requirements of the federal Risk Management Program and U.S. Environmental Protection Agency implementing regulations (40 Code of Federal Regulations, Part 68).

The five-year accident history provides an explanation of the factors that caused the accident, the on- and off-site impacts of the accident, and the changes made by SBR to minimize the likelihood that these accidents will occur again.

SBR reviewed all incident, emergency release, and equipment breakdown reports from June 1998 through May 2002 to identify accidental releases of regulated substances from covered processes that involved the impacts described above. One incident involving a regulated substance from a covered process was identified: a gas release involving a regulated toxic substance that resulted in an injury to an employee. SBR substituted the regulated toxic substance with a more inherently safe substance throughout the refinery as a result of the incident.

Section 6. Emergency Response Program

SBR has established a comprehensive Emergency Response Program. The purpose of the program is to protect workers, the public, and the environment from harm due to refinery emergencies. The program includes procedures to provide for comprehensive emergency response through the following:

- * First aid and medical treatment
- * Emergency incidents, including fire, potential fire, hazardous materials releases, and natural disasters such as floods, winds, earthquake and electrical storms
- * Emergency evacuation and rescue
- * Notification of local, state and federal emergency response agencies and the public if an incident occurs
- * Post-incident clean-up and decontamination

The Emergency Response Program provides for training of all refinery staff, which varies in level of detail based on assigned roles and responsibilities for staff under the Program. Routine audits are routinely performed by SBR staff, corporate staff, and third parties (the Kern County Fire Department and SBR's insurance company) to assure compliance with portions or all of the Emergency Response Program.

Section 7. Planned Changes to Improve Safety

SBR has a comprehensive hazard identification and mitigation program to ensure process safety. This program includes periodic process hazard analyses, investigations of near misses, and audits of processing units. Management is notified of deficiencies or potential hazards, and a mitigation plan is developed.

Current plans to improve safety include installation of more reliable process controls and process area detection systems, and enhancements to emergency evacuation systems.